

Wheat Varieties Make Way to Breads and Malt Beverages

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A field of Appalachian White hard white winter wheat growing in 2010 under certified organic conditions at Carter Farms in Eagle Springs, North Carolina. The variety was released in 2009 to farmers as a high-quality bread wheat suited to production in North Carolina, South Carolina, and Virginia.

Getting a product from research lab to the marketplace can be a long-term process. But two varieties of wheat, Appalachian White and NuEast, released for production in 2009 by a group led by an Agricultural Research Service scientist, have now become valued ingredients in products made by two North Carolina businesses.

David Marshall, research leader of the ARS Plant Science Research Unit in Raleigh, North Carolina, worked with collaborators at North Carolina State University to develop the two wheat varieties. NuEast is a hard red winter wheat, and Appalachian White is a hard white winter wheat.

Mills and bakeries in North Carolina have used the wheat varieties in some of their products. The ARS unit has a long-running project with Carolina Ground, an artisan mill and bakery in Asheville, North Carolina. “The owner, miller, and baker, Jennifer Lapidus, has used Appalachian White and NuEast in her artisan flours and baking recipes,” says Marshall.

Appalachian White is also in use by another local establishment, Riverbend Malt House—the first malt house in the eastern United States. The owners, Brent Manning and Brian Simpson, produce barley, wheat, and rye malt, and their wheat malt is mainly made from Appalachian White wheat. Marshall is currently working with Riverbend Malt House on breeding a

winter 2-row barley specifically for western North Carolina production.

The eastern United States is not hospitable to growing hard wheats, the type of wheat best suited for making breads and crackers, because the area’s humidity increases the incidence of disease in the fields. This in turn affects yield and quality of the grain.

“NuEast had significantly higher grain yield than the check varieties over 4 years of field tests,” says Marshall. “It has good resistance to leaf rust and is moderately resistant to stem rust, including Ug99 races.”

Very few hard white wheats are grown in the United States. The main challenge with growing them in the humid eastern states is preharvest sprouting, according to Marshall. “In field tests, Appalachian White had significantly higher yield than the only other variety that could be considered acceptable when grown in the eastern states,” says Marshall. Appalachian White also showed a higher level of resistance to powdery mildew, stripe rust, leaf rust, and Hessian fly, and good tolerance to preharvest sprouting.

“Being able to provide wheat varieties that fill the needs of local businesses is quite satisfying and makes the long journey from lab to market worthwhile,” says Marshall.—By **Sharon Durham**, ARS.